

erty. 1. The set of instructions which a computing or data-processing system is capable of performing. 2. The set of instructions which an automatic coding system assembles. { 'instrək-shən ,set }

Instruction time [COMPUT SCI] The time required to carry out an instruction having a specified number of addresses in a particular computer. { 'instrək-shən ,tīm }

Instruction transfer [COMPUT SCI] An instruction which transfers control to one or another subprogram, depending upon the value of some operation. { 'instrək-shən ,tranz-fər }

Instruction word [COMPUT SCI] A computer word containing an instruction rather than data. Also known as coding line. { 'instrək-shən ,wərd }

Instrument [ENG] A device for measuring and sometimes also recording and controlling the value of a quantity under observation. { 'instrə-mənt }

Instrumental analysis [ENG] The use of an instrument to measure a component, to detect the completion of a quantitative reaction, or to detect a change in the properties of a system. { 'instrə-mənt-əl ə-nal-ə-səs }

Instrumental conditioning See operant conditioning. { 'instrə-mənt-əl kən-dish-ən-ɪŋ }

Instrument approach chart [NAV] An aeronautical chart designed for use under instrument flight conditions, for making instrument approach and letdown to contact flight conditions in the vicinity of an aerodrome. { 'instrə-mənt ə-prəʃ ,çərt }

Instrument approach procedure [NAV] A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the initial approach to a landing, or to a point from which a landing can be made visually. { 'instrə-mənt ə-prəʃ prə-sē-jər }

Instrument approach system [NAV] An aircraft navigation system that furnishes guidance in the vertical and horizontal planes to aircraft during descent from an initial approach altitude to a point near the landing area; completion of a landing requires guidance to touchdown by visual or other means. { 'instrə-mənt ə-prəʃ ,sis-təm }

Instrumentation [ENG] Designing, manufacturing, and utilizing physical instruments or instrument systems for detection, observation, measurement, automatic control, automatic computation, communication, or data processing. { 'instrə-men-tā-shən }

Instrumentation amplifier [ELECTR] An amplifier that accepts a voltage signal as an input and produces a linearly scaled version of this signal at the output; it is a closed-loop fixed-gain amplifier, usually differential, and has high input impedance, low drift, and high common-mode rejection over a wide range of frequencies. { 'instrə-men-tā-shən ˈam-plə-faɪ-ər }

Instrument correction [ENG] A correction of measurements made on a unit under test for either inaccuracy of the instrument or eroding effect of the instrument. { 'instrə-mənt kə-rek-shən }

Instrumented buoy [OCEANOGR] An uncrewed floating structure for the mounting, operation, data collection, and transmission of meteorological and oceanographic parameter-measuring systems. { 'instrə-men-təd ˈbɔɪ }

Instrument flight [NAV] A flight in which the navigation of the aircraft is controlled solely by reference to instruments. { 'instrə-mənt ,flaɪt }

Instrument flight rules [NAV] Regulations governing flying when weather conditions are below the minimum for visual flight rules. Abbreviated IFR. { 'instrə-mənt ˈflaɪt ,rʌlz }

Instrument housing [ENG] A case or enclosure to cover and protect an instrument. { 'instrə-mənt ˈhaʊ-zɪŋ }

Instrument landing [NAV] A landing made through the use of a system of electronic beacons and radar. { 'instrə-mənt ˈlænd-ɪŋ }

Instrument landing system [NAV] A system of radio navigation which provides lateral and vertical guidance, as well as other navigational parameters required by a pilot in a low approach or a landing. Abbreviated ILS. { 'instrə-mənt ˈlænd-ɪŋ ,sis-təm }

Instrument landing system localizer [NAV] System of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway. { 'instrə-mənt ˈlænd-ɪŋ ,sis-təm ˌlə-kə-liz-ər }

Instrument landing system reference point See ILS reference point. { 'instrə-mənt ˈlænd-ɪŋ ,sis-təm ˈref-rəns ,pɔɪnt }

Instrument multiplier [ELEC] A highly accurate resistor used in series with a voltmeter to extend its voltage range. Also known as voltage multiplier, voltage-range multiplier. { 'instrə-mənt ˈmʌl-ti-plaɪ-ər }

Instrument oil [MATER] Special grade of lubricating oil that has been refined to have oxidation resistance and gum resistance, that has compatibility with electrical insulation, and that prevents tarnish or oxidation of contacted metal surfaces; used to lubricate instruments and other intricate mechanisms. { 'instrə-mənt ˈɔɪl }

Instrument panel [ENG] A panel or board containing indicating meters. { 'instrə-mənt ˈpæn-əl }

Instrument reading time [ENG] The time, after a change in a measured quantity, which it takes for the indication of an instrument to come and remain within a specified percentage of its final value. { 'instrə-mənt ˈrēd-ɪŋ ,tīm }

Instrument resistor [ELEC] A high-accuracy, four-terminal resistor used to bypass the major portion of currents around the low-current elements of an instrument, such as a direct-current ammeter. { 'instrə-mənt rɪ-zɪs-tər }

Instrument science [ENG] The systematically organized body of general concepts and principles underlying the design, analysis, and application of instruments and instrument systems. { 'instrə-mənt ˈsaɪ-əns }

Instrument shelter [ENG] A boxlike structure designed to protect certain meteorological instruments from exposure to direct sunshine, precipitation, and condensation, while providing adequate ventilation. Also known as thermometer screen; thermometer shelter; thermoscreen. { 'instrə-mənt ˈshel-tər }

Instrument shunt [ELEC] A resistor designed to be connected in parallel with an ammeter to extend its current range. { 'instrə-mənt ˈʃənt }

Instrument system [ENG] A system which integrates one or more instruments with auxiliary or associated devices for detection, observation, measurement, automatic control, automatic computation, communication, or data processing. { 'instrə-mənt ˈsɪs-təm }

Instrument transformer [ELEC] A transformer that transfers primary current, voltage, or phase values to the secondary circuit with sufficient accuracy to permit connecting an instrument to the secondary rather than the primary; used so only low currents or low voltages are brought to the instrument. { 'instrə-mənt ˈtranz-fɔrm-ər }

Instrument-type relay [ELEC] A relay constructed like a meter, with one adjustable contact mounted on the scale and the other contact mounted on the pointer. Also known as contact-making meter. { 'instrə-mənt ˈtɪp ˈrē-lā }

Instrument weather [METEOROL] Route or terminal weather conditions of sufficiently low visibility to require the operation of aircraft under instrument flight rules (IFR). Also known as IFR weather. { 'instrə-mənt ˈweð-ər }

Insulated [ELEC] Separated from other conducting surfaces by a nonconducting material. { 'ɪn-sə-lād-əd }

Insulated conductor [ELEC] A conductor surrounded by insulation to prevent current leakage or short circuits. Also known as insulated wire. { 'ɪn-sə-lād-əd kən-dəkt-ər }

Insulated-gate field-effect transistor See metal oxide semiconductor field-effect transistor. { 'ɪn-sə-lād-əd ˈgāt ˈfild iː-fekt ˈtranz-ɪs-tər }

Insulated-return power system [ELEC] A system for distributing electric power to trains or other vehicles, in which both the outgoing and return conductors are insulated, in contrast to a track-return system. { 'ɪn-sə-lād-əd rɪ-təm ˈpaʊ-ər ,sɪs-təm }

Insulated-substrate monolithic circuit [ELECTR] Integrated circuit which may be either an all-diffused device or a compatible structure so constructed that the components within the silicon substrate are insulated from one another by a layer of silicon dioxide, instead of reverse-biased pn junctions used for isolation in other techniques. { 'ɪn-sə-lād-əd ˈsəb-stræt ˈmən-ə-lɪθ-ɪk ˈsər-kət }

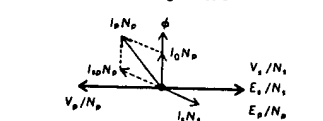
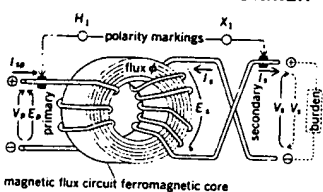
Insulated wire See insulated conductor. { 'ɪn-sə-lād-əd ˈwɪr }

Insulating board [MATER] Any board used in a wall or ceiling to provide insulation. { 'ɪn-sə-lād-ɪŋ ˈbɔrd }

Insulating compound [MATER] A liquid, at low temperatures, which is poured into joint boxes and allowed to solidify; as a poor conductor of heat and electricity, it provides good insulation. { 'ɪn-sə-lād-ɪŋ ˌkəm-paʊnd }

Insulating concrete [MATER] Concrete with insulating prop-

INSTRUMENT TRANSFORMER



A simple instrument transformer.
(General Electric Co.)

CONVULSION

TECHNICAL

MANUAL

MS

Fifth Edition

McGraw-Hill Dictionary of Scientific and Technical Terms

Fifth Edition

Sybil P. Parker
Editor in Chief

McGraw-Hill, Inc.
Auckland Bogotá New York San Francisco Washington, D.C.
Montreal New Delhi Caracas Lisbon London Madrid Mexico City Milan
San Juan Singapore Sydney Tokyo Toronto

On the cover: Photomicrograph of crystals of vitamin B₁.
(Dennis Kunkel, University of Hawaii)

Included in this Dictionary are definitions which have been published previously in the following works: P. B. Jordain, *Condensed Computer Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. J. Markus, *Electronics and Nucleonics Dictionary*, 4th ed., Copyright © 1960, 1966, 1978 by McGraw-Hill, Inc. All rights reserved. J. Quick, *Artists' and Illustrators' Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. Blakiston's *Gould Medical Dictionary*, 3d ed., Copyright © 1956, 1972 by McGraw-Hill, Inc. All rights reserved. T. Baumeister and L. S. Marks, eds., *Standard Handbook for Mechanical Engineers*, 7th ed., Copyright © 1958, 1967 by McGraw-Hill, Inc. All rights reserved.

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Fifth Edition

Copyright © 1994, 1989, 1984, 1978, 1976, 1974 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

3 4 5 6 7 8 9 0 DOW/DOW 9 9 8 7 6 5

ISBN 0-07-042333-4

Library of Congress Cataloging-in-Publication Data

McGraw-Hill dictionary of scientific and technical terms /

Sybil P. Parker, editor in chief.—5th ed.

p. cm.

ISBN 0-07-042333-4

1. Science—Dictionaries. 2. Technology—Dictionaries.

I. Parker, Sybil P.

Q123.M34 1993

503—dc20

93-34772

CIP

INTERNATIONAL EDITION

Copyright © 1994. Exclusive rights by McGraw-Hill, Inc. for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill. The International Edition is not available in North America.

When ordering this title, use ISBN 0-07-113584-7.